

101 Rec'd PCTO 12 APR 1999
09/194049

Translation

of the applicable passages and the text of the International Preliminary Examination Report issued by the European Patent Office on October 08, 98

**TREATY ON THE INTERNATIONAL COOPERATION
IN THE FIELD OF INTELLECTUAL PROPERTY**

PCT

**NOTIFICATION ABOUT THE COMMUNICATION
OF THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

(Rule 71.1 PCT)

		Mailing Date	October 08, 98
Applicant's or Attorney's File Number: Sr 4/96 PCT		IMPORTANT COMMUNICATION	
International File No. PCT/DE 97/01346	International Filing Date 06/27/1997	Priority Date 06/27/1996	
Applicant SCHLEIFRING UND APPARATEBAU GMBH et al.			

1. The Applicant is herewith informed about the agency entrusted with the international preliminary examination communicating the international preliminary examination report, if necessary together with the appertaining Annexes, in relation to this international application.
2. A copy will be communicated to the International Office for forwarding to all authorities and agencies in the designated countries, possibly together with the appertaining Annexes.
3. Upon request received from a designated agency the International Office will produce an English translation of the Report (however not of the Annexes) and communicate it to that agency.

4. PLEASE NOTE

For entry into the national phase the Applicant must perform certain acts (submission of translations and payment of national fees) before each designated agency within 30 months from the priority date (in some agencies even later) (Article 39 (1)) (cf. also the information communicated on Form PCT/IB/301 by the International Office).

Whenever a translation of the international application must be communicated to a designated agency this translation must also contain translations of all Annexes to the International Preliminary Examination Report. It is incumbent on the Applicant to have such translations produced and forwarded to the respective designated agencies.

For further details on the pertinent terms and requirements before the designated agencies may be looked up in Volume II of the PCT Guide for Applicants.

	Officer in Charge of the Case Finnie, A.
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OFFICE ACTION IN WRITING

International File Number PCT/DE97/01349

I. Basis of the Office Action

1. This Office Action has been prepared on the basis defined below (*substitute sheets submitted to the filing Office upon a request pursuant to Article 14 are considered as „filed originally“ for the purposes of the present Office Action.*):

Description, pages:

1 – 9 as filed originally

Patent Claims, Nos.

1 – 8 as filed originally

Drawings, Sheets:

1/1 as filed originally

V. Findings and grounds thereof as established pursuant to Rule 66.2(a)(ii) in terms of novelty, inventive step and industrial applicability; documents and explanations in support of these findings

1. Findings

Inventive step (IS) Claims 1 – 8

2. Documents and explanations:

cf. Supplementary Sheet

VII. Specific Deficiencies in the international Application

The international Application has been found to present the following deficiencies in terms of form or essence:

cf. Supplementary Sheet

SECTION V

The international Application relates to a device for receiving optical signals, comprising a light-guiding object.

Document D1 (DE-A-4 421 616) discloses, as prior art coming closest to the subject matter of Claim 1, a device for receiving optical signals by means of a light-guiding object into which the optical signal to be received may be coupled, wherein, by spontaneous emission, fluorescent light is emitted which has a wavelength greater than the original wavelength and which is transferred along the longitudinal orientation of the object (e.g. an optical fiber) to a detector.

The remaining documents of the international search report merely relate to a more general state of prior art.

In an approach to allow for a largely loss-free reception of optical signals having a wide bandwidth in such an arrangement, Claim 1 of the international Application proposes that in response to light irradiation an optical signal of the same wavelength is produced by elastic dispersion, with one radiation component extending in the direction of the light-guiding object.

These facts are neither disclosed nor suggested by the documents of the international search report, neither separately nor in a combination. Novelty and inventive step are hence confirmed.

The same applies also to the dependent Claims 2 to 4 as well as to the dependent application claims 5 to 8.

SECTION VII

For full compliance with the requirements set forth in Rule 5.1(a)(ii) PCT it had been necessary to identify documents D1 and D2 (EP-A-0 586 713) with a brief outline of the pertinent prior art as reflected therein.

The dependent Claims 2 to 4 and 5 to 8 merely relate to expert design provisions and do hence not add any inventive aspect to the respective main claims supporting them.

SECTION VII

For full compliance with the requirements set forth in Rule 5.1(a)(ii) PCT the documents D1 and D2 must be identified in the description; the pertinent prior art reflected therein should be briefly outlined.

For compliance with the requirements of Rule 6.3 b) PCT Claim 1 should be worded in a bipartite form; those features which, when combined to each other, are part of prior art (see above) must be incorporated into the introductory clause.

The Applicant should moreover adapt the description to new claims; in an amendment of the application, particularly the introductory part, inclusive of the definition of the problem or the advantages of the invention, it should be duly noted that no facts will be added which would go beyond the essence of the application as filed originally (Article 34(2)(b) PCT).

The features mentioned in the claims should be supplemented with reference numerals enclosed in brackets (Rule 6.2 b) PCT).

TRANSLATION

of the response filed by Dr. Muenich & Coll., Patent Attorneys, Muenchen with the European Patent Office, Muenchen on June 23, 98

June 23, 98

Our ref.: Sr 4/96 PCT

PCT Patent Application PCT/DE 97/01346

Title: Device for receiving optical signals, comprising a light-guiding object
Applicant: Schleifring & Apparatebau GmbH

In response to the Office Action passed in writing pursuant to Rule 66 PCT on March 23, 98

the arguments set forth hereinbelow are submitted for the records, with the present statement of claim being maintained.

In view of the statements presented by the Examination Office in Section V of the above-identified Office Action in view of the assessment of the established prior art it seems as if the inventive idea has not been correctly grasped so that the idea of the invention should be briefly outlined in the following.

The use of a light-guiding object, which consists of a material in which, upon incidence of light, a so-called "elastically diffused light" is created which has the same

wavelength as the incident light in its turn is the focal aspect of the invention. This process of elastic diffusion serves to achieve, in particular, an oriented radiation field which is intended to propagate preferably in parallel with the surface of the light-guiding object in order to satisfy the light-amplifying laws of stimulated emission, which are to be implemented in a defined direction.

The term "elastic diffusion" does not serve as a basis of the guidance of light in a light-guiding object, such as a fibre optical waveguide, but merely endows the light incident into the light-guiding object with a "light deviation" in a direction along the main direction of propagation of the light-guiding object. In relation to the example of a fibre optical waveguide the process of elastic diffusion means that the light incident upon the fibre optical waveguide is deviated in the fibre also in a direction of the fibre axis in a manner invariant in terms of wavelength. This fact is highly relevant particularly for the oriented stimulated emission within the fibre optical waveguide, especially as the elastically diffused light is amplified by way of induced emission onto the entire periphery of the ring.

This finding that the effect of "elastic diffusion" should be utilised in appropriately selected materials, preferably synthetic materials, can neither be derived from nor be suggested in the prior art documents established by the Examination Office.

The Examination Office deems the document D1 to reflect a prior art coming close to the subject matter of Claim 1.

In the cited prior art document a device is described for transmitting and receiving rotating light signals, wherein the receiving means consists of a fluorescent fibre optical waveguide bent to form a circle opposite which a signal light source is moved. The functional principle which is the basis of signal transmission is described in details in lines 51 to 61 in column 2. The light coupled in from the light source into the fibre optical waveguide is absorbed by fluorescent dyes provided in the fibre optical waveguide and is emitted by way of fluorescence at a wavelength greater than the originally irradiated wavelength. The emission of this fluo-

rescent light takes place firstly spontaneously and secondly in an isotropic manner so that also a certain part of the fluorescent light arrives in the acceptance range of the fibre. By way of common optical guidance within a fibre optical fibre this part of the fluorescent light arrives at the fibre ends where appropriate detector means are provided. Such a light transmission device, based on fluorescence as the operative mechanism, has been duly discussed already in the passage from the last paragraph on page 2 to the first paragraph on page 4 of the introduction to the description. In order to avoid repetitions reference is made to the disadvantages of the known device, which are clearly outlined in the aforementioned passage of the text.

In particular, there are two substantial differences between the subject matter of the application and the known device in accordance with the prior art document 1:

- In the known device the fluorescence does not involve a stimulated emission but a spontaneous emission, i.e. a process taking place at a rate reduced by at least six orders.
- In the known device the light deviated in the longitudinal direction of the fibre is produced purely exclusively by fluorescence rather than by elastic diffusion.

The aforementioned differences are sufficient already to show that the prior art document 1 does not contain any references to the inventive features of the subject matter of the inventive application.

Moreover, from document D2 not any teaching may be derived which would oppose the inventive idea as a bar to the issuance of a patent. The document 2 discloses a fibre optical amplifier which amplifies merely that part of the radiation which is irradiated along the longitudinal extension of the fibre, as is common, by the way, also in optical amplifiers. By contrast, that radiation share is amplified in the subject matter of the application which had been initially coupled in laterally of the fibre.

The Examination Office is therefore requested to review the initially expressed negative consideration in the light of the foregoing statements again and to confirm the patentability of the statement of claim on principle.

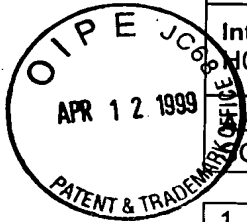
[Uwe Roesler]

Uwe Roesler

Translation

of the applicable passages and the text in the Preliminary International Examination Report as issued by the European Patent Office on 20 July 98

		Mailing Date	July 20, 98
Applicant's or Attorney's File Number: Sr 4/96 PCT		RESPONSE TO BE FILED within 1 month(s) and 15 days from the above mailing date	
International File No. PCT/DE 97/01346	International Filing Date 06/27/1997	Priority Date 06/27/1996	
International Patent Classification (IPC) or national classification and IPC H04B10/22			
Applicant SCHLEIFRING UND APPARATEBAU GMBH et al.			
<p>1. This Office Action is the second office action passed in writing by the authority entrusted with the international preliminary examination.</p> <p>2. This Office Action includes information and the corresponding pages on the following aspects:</p> <p>I. <input checked="" type="checkbox"/> basis of the Office Action</p> <p>VII. <input checked="" type="checkbox"/> Specific deficiencies in the international application</p> <p>3. The Applicant is requested to comment upon this Office Action.</p> <p>When? cf. the above-indicated term. Prior to expiration of the term the Applicant may request a prolongation; cf. Rule 66.2 (d)</p> <p>How? By submission of a brief with comments, and possibly of amendments pursuant to Rule 66.3. Cf. Rules 66.8 and 66.9 for the form and the language.</p> <p>Moreover: Regarding an additional possibility of submitting amendments - cf. Rule 66.4. With respect to the Examiner's duty to consider amendments and/or opposing views - cf. Rule 66.4 bis. In relation to an informal discussion with the Examiner - cf. Rule 66.6.</p> <p>Failure to submit a comment will result in the establishment of the international preliminary examination report on the basis of this Office Action.</p> <p>4. The date by or before which the international preliminary examination report must have been established pursuant to Rule 69.2 is: 10/27/1998</p>			



Officer in Charge of the Case

Haas, H

Formalities Officer:

A. Finnie

OFFICE ACTION IN WRITING

International File Number PCT/DE97/01349

I. Basis of the Office Action

1. This Office Action has been prepared on the basis defined below (*substitute sheets submitted to the filing Office upon a request pursuant to Article 14 are considered as „filed originally“ for the purposes of the present Office Action.*):

Description, pages:

1 – 9 as filed originally

Patent Claims, Nos.

1 – 8 as filed originally

Drawings, Sheets:

1/1 as filed originally

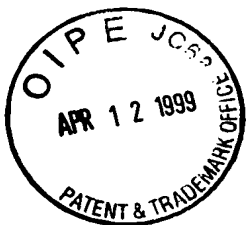
VII. Specific Deficiencies in the International Application

The international Application has been found to present the following deficiencies in terms of form or essence:

cf. Supplementary Sheet

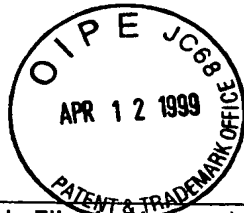
In the light of Applicant's arguments the inventive step is no longer denied.

Moreover, reference is made to the deficiencies set forth in Section VII in the first Office Action.



Translation

of the applicable passages and the text of the International Preliminary Examination Report issued by the European Patent Office on March 23, 98



Mailing Date
(day/month/year) **March 23, 98**

Applicant's or Attorney's File Number: Sr 4/96 PCT		RESPONSE TO BE FILED within 3 months from the above mailing date	
International File No. PCT/DE 97/01346	International Filing Date 06/27/1997	Priority Date 06/27/1996	
International Patent Classification (IPC) or national classification and IPC A61B17/28			
Applicant SCHLEIFRING UND APPARATEBAU GMBH et al.			

1. This Office Action is the **first** office action passed in writing by the authority entrusted with the international preliminary examination.
2. This Office Action includes information and the corresponding pages on the following aspects:
 - I. ☒ basis of the Office Action
 - V. ☒ Findings and grounds thereof as established pursuant to Rule 66.2 a(ii) in terms of novelty, inventive step and industrial applicability; documents and explanations in support of these findings
 - VII. ☒ Specific deficiencies in the international application
3. The Applicant is **requested to comment upon** this Office Action.

When? cf. the above-indicated term. Prior to expiration of the term the Applicant may request a prolongation; cf. Rule 66.2 (d)

How? By submission of a brief with comments, and possibly of amendments pursuant to Rule 66.3. Cf. Rules 66.8 and 66.9 for the form and the language.

Moreover: Regarding an additional possibility of submitting amendments - cf. Rule 66.4.
With respect to the Examiner's duty to consider amendments and/or opposing views - cf. Rule 66.4 bis.
In relation to an informal discussion with the Examiner - cf. Rule 66.6.

Failure to submit a comment will result in the establishment of the international preliminary examination report on the basis of this Office Action.
4. The date by or before which the international preliminary examination report must have been established pursuant to Rule 69.2 is: 10/27/1998

Officer in Charge of the Case
Haas, H

Formalities Officer:
A. Finnie

**TREATY ON THE INTERNATIONAL COOPERATION
IN THE FIELD OF INTELLECTUAL PROPERTY**

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(Article 36 and Rule 70 PCT)

Applicant's or Attorney's File Number: Sr 4/96 PCT	FURTHER PROCEDURE cf. Notification about the Communication of the international preliminary examination report (on Form PCT/IPEA/416)
International File No. PCT/DE 97/01346	International Filing Date 06/27/1997
Priority Date 06/27/1996	
International Patent Classification (IPC) or national classification and IPC H04B10/22	
Applicant SCHLEIFRING UND APPARATEBAU GMBH et al.	

1. This international provisional examination report has been drafted by the authority entrusted with the international preliminary examination and is notified to the Applicant pursuant to Article 36.
2. This REPORT includes a total of 6 sheets, including this cover sheet.
3. This Report contains information on the following aspects: <ul style="list-style-type: none"> I. <input checked="" type="checkbox"/> basis of the Office Action V. <input checked="" type="checkbox"/> findings and grounds thereof pursuant to Article 35(2) in relation to novelty, inventiveness and industrial applicability; VII. <input checked="" type="checkbox"/> specified deficiencies in the international application

Filing Date of the examination request: 11/11/1997	Date of completion of this Report: 10/08/98
Name and Address of the agency entrusted with the international preliminary examination European Patent Office D-80298 Muenchen	Officer in charge of the case: Haas, H.

**International Preliminary
Examination Report**

International File Number: PCT/DE97/01346

I. Basis of the Report

1. This Report has been prepared on the basis defined below (*substitute sheets submitted to the filing Office upon a request pursuant to Article 14 are considered as „filed originally“ for the purposes of the present Report and are not annexed because they do not include any amendments.*):

Description, pages:

1 – 9 as filed originally

Patent Claims, Nos.

1 – 8 as filed originally

Drawings, Sheets:

1/1 as filed originally

V. Findings and Grounds thereof as established pursuant to Article 35(2) in terms of novelty, inventive step and industrial applicability; documents and explanations in support of these findings.

1. Findings

Novelty (N)	Yes: Claims 1 – 8 No: Claims
Inventive step(ET)	Yes: Claims 1 - 8 No: Claims
Commercial Applicability (GA)	Yes: Claims 1 - 8

2. Documents and Explanations

cf. Supplementary Sheet

VII. Specified deficiencies in the international application:

The international application has been found to have the following deficiencies in terms of form or essence:

cf. Supplementary Sheet

SECTION V

In relation to the subject matter of Claim 1, Document D1 (= DE-A-4 421 616) discloses a device for receiving optical signals by means of a light-guiding object (Figure 2, (10)) into which the optical signal to be received may be coupled and which contains a material having an electron array which may be inverted by energetic excitation and which, in response to stimulated emission, emits light at an emission wavelength which corresponds to the wavelength of the optical signals to be received, comprising a detector means (Figure 2, (11)) optically coupled to the light-guiding object for the detection of the light which can be produced by emission processes stimulated by the optical signals coupled into the light-guiding object, wherein the light-guiding object consists of a material, preferably a synthetic material, which, in response to light radiation at an angle of $0^\circ < \alpha < 90^\circ$ relative to the irradiation surface, produces light within the material by elastic dispersion – which means that the wavelength of the diffused light corresponds to the wavelength of the irradiated light – which has a radiation component in the direction of a main propagation sense of the light-guiding object (cf. document D1, Abstract).

By contrast, the device according to Claim 1 is distinguished therefrom merely by the aspect that here an excitation unit (e.g. a pumped laser) is employed. The use of such a light source for optical amplification can, however, be considered only to be a simple expert provision which does not involve any inventive step. Such an excitation unit is also described on pages 6 and 7 (Example 1) of document D2 (EP-A-0 586 713).

Claim 1 of record hence fails to satisfy the requirements pursuant to Article 33(3) PCT (Inventive Step).

The same applies also to the Application Claim 6 (cf. lines 28 to 43 in column 1 of document D1).

**International Preliminary
Examination Report
- SUPPLEMENTARY SHEET**

International File Number: PCT/DE97/01346

In order that the requirements of Rule 6.3 b) PCT will be satisfied Claim 1 should be worded in a bipartite form.

The features of the Claims are not supplemented by reference numerals enclosed in brackets (Rule 6.2 b) PCT).